UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/899,082	07/06/2001	Geert Maertens	2752-50	7439

7590 08/08/2002

NIXON & VANDERHYE P.C.
8th Floor
1100 North Glebe Rd.
Arlington, VA 22201-4714

EXAMINER	
WHISENANT, ETHAN C	
ART UNIT	**PAPER NUMBER**
1634	

DATE MAILED: 08/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/899,082	MAERTENS ET AL.	
	Examiner	Art Unit	
	Ethan C. Whisenant, Ph.D.	1634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 July 2002* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-36* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *24-36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *attachment A* .

ELECTION/RESTRICTION

1. The applicant's request for a new action (i.e. paper no. 10) filed 08 JUL 02 has been entered. The request for a new action is based on the applicant's contention that the examiner examined the wrong claims. In order to correct any deficiencies in the previous Office action the examiner has reconsidered the pending claims (i.e. **Claim 24** as amended in the amendment filed 28 MAY 02 – paper no. 7 and **Claims 25-36** as recited in the amendment filed 06 JUL 01 – paper no. 5). The examiner apologizes for any inconvenience caused by his mistake. However, please note on page 2 of the amendment filed 06 JUL 01 – paper no. 5 that the applicant states that Claims 21-45 are pending. Also please note attachment A which is a copy of the claims the examiner believes are pending. Please confirm.

SEQUENCE RULES

2. This application complies with the sequence rules and the sequences have been entered by the Scientific and Technical Information Center.

35 USC § 112- 2ND PARAGRAPH

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

CLAIM REJECTIONS under 35 USC § 112- 2ND PARAGRAPH

4. **Claim(s) 25, 30-31 36** is/are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 25 and 30-31 are unclear because it is unclear what is intended by the phrase "preferably". The use of exemplary claim language makes this claim indefinite. See the MPEP at 2173.05(d). It is well established that the description of examples or preferences is properly set forth in the specification rather than the claims. If stated in the claims, examples and preferences lead to confusion over the intended scope of a claim. Ex parte Hall, 83 USPQ 38 (Bd. App. 1949).

Claim 36 is unclear because it is unclear what is intended by the phrases "degenerate primer with SEQ ID NO: 1" and "degenerate primer with SEQ ID NO: 2". It appears to the examiner that SEQ ID NOs: 1 and 2, at least as defined in Claim 1, could be termed degenerate primers. Is this what is intended or does this phrasing encompass more? In addition, the use of the phrases "preferably" and "such as " makes this claim indefinite. The use of exemplary claim language makes this claim indefinite. See the MPEP at 2173.05(d). It is well established that the description of examples or preferences is properly set forth in the specification rather than the claims. If stated in the claims, examples and preferences lead to confusion over the intended scope of a claim. Ex parte Hall, 83 USPQ 38 (Bd. App. 1949).

Finally, Claim 36 is unclear because it is unclear what is intended by the phrase "preferably n combination" on line 6. It appears the word "in" is misspelled. Please clarify.

35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that may form the basis for rejections set forth in this Office action:

> A person shall be entitled to a patent unless --
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

CLAIM REJECTIONS UNDER 35 USC § 102

6. **Claim(s) 25 and 35** is/are rejected under 35 U.S.C. 102(e) as anticipated by Resnick et al. [US 5,527,669 (1996)].

Claim 25 is drawn to a composition comprising at least one oligo primer having at least 15 contiguous nucleotides wherein said contiguous nucleotides are chosen from one of a defined group which includes SEQ ID NOs :1, 2, 3 and 4.

Resnick et al. teach a composition comprising at least one oligo having at least 15 contiguous nucleotides of SEQ ID NO: 4. See the attached alignment labeled SEQ ID NO: 4.

Claim 35 is drawn to a probe comprising up to 50 nucleotides and comprising at least one of SEQ ID NO: 20 or SEQ ID NO: 27 or sequences which are complementary thereto.

Resnick et al. teach a probe comprising 26 nucleotides and comprising SEQ ID NO: 27 or a sequence complementary thereto. See the attached alignment labeled SEQ ID NO: 27.

35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. § 103, the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligations under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of potential 35 U.S.C. § 102(f) or (g) prior art under 35 U.S.C. § 103.

CLAIM REJECTIONS UNDER 35 USC § 102/103

9. **Claim(s) 25** is/are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Lin et al. [US 5,620,852 (1997)].

Claim 25 is drawn to a composition comprising at least one oligo primer having at least 15 contiguous nucleotides wherein said contiguous nucleotides are chosen from one of a defined group which includes SEQ ID NOs: 1, 2, 3, 20 and 27.

Lin et al. teach a composition comprising at least one oligo having at least 15 contiguous nucleotides of SEQ ID NO: 1. See the attached alignment labeled SEQ ID NO: 1. Admittedly Lin et al. do not teach using their oligo as a primer. However, the recitation of the intended use of a claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. *In re Casey* , 152 USPQ 235 (CCPA 1967); *In re Otto* , 136 USPQ 458, 459 (CCPA 1963).

10. **Claim(s) 25** is/are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Martell et al.(1992).

Claim 25 is drawn to a composition comprising at least one oligo primer having at least 15 contiguous nucleotides wherein said contiguous nucleotides are chosen from one of a defined group which includes SEQ ID NOs: 1, 2, 3, 20 and 27.

Martell et al. teach a composition comprising at least one oligo having at least 15 contiguous nucleotides of SEQ ID NO: 1. See the attached alignment labeled SEQ ID NO: 3. Admittedly Martell et al. do not teach using their oligo as a primer. However, the recitation of the intended use of a claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. *In re Casey* , 152 USPQ 235 (CCPA 1967); *In re Otto* , 136 USPQ 458, 459 (CCPA 1963).

11. **Claim(s) 26, 28-29 and 35** is/are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Cha et al. [US 6,297,370 (2001)].

Claim 26 is drawn to a polynucleic acid consisting of 10 to 50 nucleotides which specifically hybridizes with SEQ ID NO: 20 or the complement thereof under conditions allowing the discrimination of up to 1 nucleotide mismatch.

Cha et al. teach a polynucleic acid consisting of 18 nucleotides (i.e.10 to 50 nucleotides) comprising a sequence which hybridizes with the sequence complementary to SEQ ID NO: 20. See the attached alignment labeled SEQ ID NO: 20. Admittedly Cha et al. do not teach that their 18-mer specifically hybridizes with SEQ ID NO: 20 or the complement thereof under conditions allowing the discrimination of up to 1 nucleotide mismatch. However, absent a showing to the contrary this property is considered to be inherent to the 18-mer taught by Cha et al.

Claim 28 is drawn to a method of detecting the presence of an infection with an HCV virus in a biological sample by means of a hybridization reaction wherein a polynucleotide of Claim 26 or Claim 27 is used as a probe.

Cha et al. teach a method of detecting the presence of an infection with an HCV virus in a biological sample by means of a hybridization reaction wherein their 18-mer is used as a primer/ probe.

Claim 35 is drawn to a probe comprising up to 50 nucleotides and comprising at least one of SEQ ID NO: 20 or SEQ ID NO: 27 or sequences which are complementary thereto.

Cha et al. teach a probe comprising 18 nucleotides and comprising SEQ ID NO: 20 or a sequence complementary thereto. See the attached alignment labeled SEQ ID NO: 20.

CLAIM REJECTIONS UNDER 35 USC § 103

12. **Claim(s) 27-29** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Resnick et al. [US 5,527,669 (1996)].

Claim 27 is drawn to a polynucleic acid consisting of 10 to 25 nucleotides which hybridizes with SEQ ID NO: 27 or the complement thereof.

Resnick et al. teach a polynucleic acid comprising all of the limitations of Claim 27 except the oligo taught by Resnick et al. is 26 nucleotides long - See the attached alignment labeled SEQ ID NO: 27. However, absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention, that one could, with a reasonable expectation of success, reduce the size of

the oligo(s) taught by Resnick et al. to the size range recited (i.e. 10 to 25 nucleotides) and continue to achieve the same result(s) as taught by Resnick. The ordinary artisan would have been motivated to make this modification in order to reduce costs. It would have been/is cheaper to synthesize shorter oligos.

Claim 28 is drawn to a method of detecting the presence of an infection with an HCV virus in a biological sample by means of a hybridization reaction wherein a polynucleotide of Claim 26 or Claim 27 is used as a probe.

Resnick et al. teach a method of detecting the presence of an infection with an HCV virus in a biological sample by means of a hybridization reaction wherein their 26-mer is used as a primer/ probe.

13. **Claim(s) 30-31** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Resnick et al. [US 5,527,669 (1996)] or Cha et al. [US 6,297,370 (2001)] as applied against Claims 28-29 above and further in view of Uhlen et al. [US 5,629,158(1997)].

Claim 30 is drawn to an embodiment of Claim 28 wherein said hybridization reaction is carried out with said probes coupled to a solid support. **Claim 31** is drawn to an embodiment of Claim 29 wherein said hybridization reaction is carried out with said probes coupled to a solid support.

Resnick et al. teach a method comprising all of the limitations recited in Claim 30-31 except these authors do not teach that the probe/primer should be coupled to a solid support. However, Uhlen et al. do teach solid-phase PCR wherein a probe/primer is coupled to a solid support. Therefore, absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention, that one could, with a reasonable expectation of success, modify the assay taught by Resnick et al., wherein the probe/primer is coupled to a solid support. The ordinary artisan would have been motivated to make this modification in order to gain the advantages of solid phase assays outlined by Uhlen et al.

14. **Claim(s) 34** is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al. [US 5,620,852 (1997)] or Cha et al. [US 6,297,370 (2001)] or Resnick et al. [US 5,527,669 (1996)] or Martell et al.(1992) as applied against Claim 24-26 above and further in view of the Stratagene Catalog (1988).

Claim 34 is drawn to a diagnostic kit for the detection of HCV in a biological sample comprising at least one of the polynucleic acids of any of Claims 24-26.

Lin et al., for example, teach all of the limitations of Claim 34 except these authors do not teach placing the reagents used to perform their method into a kit. However, as evidenced by the Stratagene Catalog teaching, it was well known at the time of the invention to place the reagents needed to perform a nucleic acid based assay into a kit format. Therefore, absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify the teachings of Lin et al. with the teachings of the Stratagene Catalog wherein the reagents necessary to perform the method of Lin et al. are placed into a kit format. The ordinary artisan would have been motivated to make this modification in order to take advantage of the savings and efficiency afforded by kits.

NONSTATUTORY DOUBLE PATENTING

15. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See In re Goodman, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); In re Longi, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); In re Van Ornum, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); In re Vogel, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, In re Thorington, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

16. **Claim(s) 24-25, 27, 35** is/are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-2 of copending USSN 09/378,900. Although the conflicting claims are not identical, they are not patentably distinct from each other. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

17. **Claim(s) 34** is/are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-2 copending USSN 09/378,900. as applied above and further in view of the Stratagene Catalog (1988).

Claims 1-2 of copending USSN 09/378,900 teach all of the limitations of Claim 34 except this claim does not teach placing the reagents into a kit. However, as evidenced by the Stratagene Catalog teaching, it was well known at the time of the invention to place the reagents needed to perform a nucleic acid based assay into a kit format. Therefore, absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify the teachings of Claims 1-2 of USSN 09/378,900 with the teachings of the Stratagene Catalog wherein the reagents of Claims 1-2 of USSN 09/378,900 are placed into a kit format. The ordinary artisan would have been motivated to make this modification in order to take advantage of the savings and efficiency afforded by kits. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

18. **Claim(s) 24-27 and 35** is/are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claim 1 of US 6,051,696. Although the conflicting claims are not identical, they are not patentably distinct from each other.

19. **Claim(s) 34** is/are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1 of US 6,051,696 as applied above and further in view of the Stratagene Catalog (1988).

Claim 1 of US 6,051,696 teach all of the limitations of Claim 34 except this claim does not teach placing the reagents into a kit. However, as evidenced by the Stratagene Catalog teaching, it was well known at the time of the invention to place the reagents needed to perform a nucleic acid based assay into a kit format. Therefore, absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify the teachings of Claim 1 of US 6,051,696 with the teachings of the Stratagene Catalog wherein the reagents of Claim 1 of US 6,051,696 are placed into a kit format. The ordinary artisan would have been motivated to make this modification in order to take advantage of the savings and efficiency afforded by kits. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

20. **Claim(s) 28-33, 36** is/are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-13 of US 5,846,704. Although the conflicting claims are not identical, they are not patentably distinct from each other.

21. **Claim(s) 34** is/are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1-13 of US 5,846,704 as applied above and further in view of the Stratagene Catalog (1988).

Claims 1-13 of US 5,846,704 teach all of the limitations of Claim 34 except this claim does not teach placing the reagents into a kit. However, as evidenced by the Stratagene Catalog teaching, it was well known at the time of the invention to place the reagents needed to perform a nucleic acid based assay into a kit format. Therefore, absent an unexpected result, it would have been *prima facie* obvious to the ordinary artisan at the time of the invention to modify the teachings of Claims 1-13 of US 5,846,704 with the teachings of the Stratagene Catalog wherein the reagents of Claims 1-13 of US 5,846,704 are placed into a kit format. The ordinary artisan would have been motivated to make this modification in order to take advantage of the savings and efficiency afforded by kits. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

CONCLUSION

22. **Claim(s) 24-36** is/are rejected and/or objected to for the reason(s) set forth above.

23. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ethan Whisenant, Ph.D. whose telephone number is (703) 308-6567. The examiner can normally be reached Monday-Friday from 8:30AM -5:30PM EST or any time via voice mail. If repeated attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, W. Gary Jones, can be reached at (703) 308-1152.

The fax number for this Examiner is (703) 746-8465. Before faxing any papers please inform the examiner to avoid lost papers. Please note that the faxing of papers must conform with the Notice to Comply published in the Official Gazette, 1096 OG 30 (November 15, 1989). Any inquiry of a general nature or relating to the status of this application should be directed to the group receptionist whose telephone number is (703) 308-0196.

ETHAN C. WHISENANT
PRIMARY EXAMINER

SEQ ID NO: 1

RESULT 13
I40293
LOCUS I40293 305 bp DNA linear PAT
13-MAY-1997
DEFINITION Sequence 1 from patent US 5620852.
ACCESSION I40293
VERSION I40293.1 GI:2082585
KEYWORDS .
SOURCE Unknown.
ORGANISM Unknown.
Unclassified.
REFERENCE 1 (bases 1 to 305)
AUTHORS Lin,L., Cimino,G. and Zhu,Y.S.
TITLE Nucleic acid preparation methods
JOURNAL Patent: US 5620852-A 1 15-APR-1997;
FEATURES Location/Qualifiers
source 1. .305
/organism="unknown"
BASE COUNT 59 a 91 c 92 g 63 t
ORIGIN

Query Match 98.5%; Score 26.6; DB 6; Length 305;
Best Local Similarity 96.3%; Pred. No. 0.027;
Matches 26; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 CCCTGTGAGGAACTWCTGTCTTCACGC 27
           ||||||||||||||:||||||||||||
Db      43 CCCTGTGAGGAACTACTGTCTTCACGC 69
```

SEQ ID NO: 1

RESULT 10
AAQ37774
ID AAQ37774 standard; cDNA; 242 BP.
XX
AC AAQ37774;
XX
DT 30-JUN-1993 (first entry)
XX
DE Cloned HCV 5' non coding region from pGHCV1A.
XX
KW Hepatitis C virus; probe; hepatocellular necrosis; hepatocellular;
KW carcinoma; diagnosis; therapy; ss.
XX
OS Hepatitis C virus.
XX
PN EP531974-A.
XX
PD 17-MAR-1993.
XX
PF 09-SEP-1992; 92EP-0115426.
XX
PR 12-SEP-1991; 91US-0758862.
XX
PA (CEDA-) CEDARS SINAI MEDICAL CENT.
XX
PI Hu K, Vierling JM;
XX
DR WPI; 1993-087007/11.
XX
PT Detection of hepatitis C virus (HCV) RNA - using nucleic acid
PT probes derived from the 5'-non-coding region of the HCV genome
XX
PS Claim 1; Fig 4; 26pp; English.
XX
CC To obtain HCV cDNA nucleotide sequences from the 5' non-coding
CC region a pair of oligonucleotides based on the reported sequence of
CC HC-J1 were used as primers for HCV PCR. HCV RNA was isolated from
CC serum of a putatively infected individual. RNA reverse
CC transcription PCR was performed and a specific PCR prod. identified.
CC The prod. was used to transform E. coli DH5 alpha to obtain pGHCV1A
CC contg. a 242 bp insertion from the HCV 5' non-coding region. This
CC probe is highly specific and sensitive for HCV RNA. The probe can
CC be used to quantitively detect the amt. of HCV in samples, to
CC analyse the molecular forms of HCV RNA during evolution of the
CC disease, to localise HCV in hepatic and/or extrahepatic tissues
CC and to study the relationship between HCV infection, hepatocellular
CC necrosis and hepatocellular carcinoma. The probe can be used to
CC diagnose HCV infection, to prepare blood free of HCV and to moniter
CC anti-HCV therapy.
XX
SQ Sequence 242 BP; 51 A; 74 C; 67 G; 50 T; 0 other;

Query Match 98.5%; Score 26.6; DB 14; Length 242;
Best Local Similarity 96.3%; Pred. No. 0.01;
Matches 26; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 CCCTGTGAGGAACTWCTGTCTTCACGC 27
           ||||||||||||||:||||||||||||
Db      20 ccctgtgaggaactactgtcttcacgc 46
```

SEQ ID NO: 3

```
RESULT   8
HPCUT6CLN
LOCUS       HPCUT6CLN     123 bp ss-RNA             VRL       02-AUG-1993
DEFINITION  Hepatitis C virus (clone #6) nonstructural protein gene, 5' flank.
ACCESSION   M94468 M84479
VERSION     M94468.1  GI:329981
KEYWORDS    nonstructural protein.
SOURCE      Hepatitis C virus RNA.
  ORGANISM  Hepatitis C virus
            Viruses; ssRNA positive-strand viruses, no DNA stage; Flaviviridae;
            Hepacivirus.
REFERENCE   1  (bases 1 to 123)
  AUTHORS   Martell,M., Esteban,J.I., Quer,J., Genesca,J., Weiner,A.,
            Esteban,R., Guardia,J. and Gomez,J.
  TITLE     Hepatitis C virus (HCV) circulates as a population of different but
            closely related genomes: Quasispecies nature of HCV genome
            distribution
  JOURNAL   J. Virol. 66, 3225-3229 (1992)
  MEDLINE   92219420
FEATURES             Location/Qualifiers
     source          1. .123
                     /organism="Hepatitis C virus"
                     /db_xref="taxon:11103"
BASE COUNT       28 a     35 c     36 g     24 t
ORIGIN


  Query Match             96.9%;  Score 25.2;  DB 59;  Length 123;
  Best Local Similarity   92.3%;  Pred. No. 0.42;
  Matches   24;  Conservative    2;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 TCTAGCCATGGCGTTAGTRYGAGTGT 26
           ||||||||||||||||||::||||||
Db      33 TCTAGCCATGGCGTTAGTATGAGTGT 58
```

SEQ ID NO: 4

```
RESULT   4
I22160
LOCUS       I22160          26 bp    DNA             PAT       07-OCT-1996
DEFINITION  Sequence 19 from patent US 5527669.
ACCESSION   I22160
VERSION     I22160.1  GI:1602514
KEYWORDS    .
SOURCE      Unknown.
  ORGANISM  Unknown.
            Unclassified.
REFERENCE   1  (bases 1 to 26)
  AUTHORS   Resnick,R.M. and Young,K.K.Y.
  TITLE     Methods, primers and probes for detection of hepatitis C and novel
            variants
  JOURNAL   Patent: US 5527669-A 19 18-JUN-1996;
FEATURES             Location/Qualifiers
     source          1. .26
                     /organism="unknown"
BASE COUNT        7 a     10 c      5 g      4 t
ORIGIN


  Query Match           100.0%;  Score 26;  DB 10;  Length 26;
  Best Local Similarity 100.0%;  Pred. No. 0.053;
  Matches   26;  Conservative    0;  Mismatches    0;  Indels    0;  Gaps    0;

Qy       1 CACTCGCAAGCACCCTATCAGGCAGT 26
           ||||||||||||||||||||||||||
Db       1 CACTCGCAAGCACCCTATCAGGCAGT 26
```

SEQ ID NO: 20

RESULT 2
AAQ31111/c
ID AAQ31111 standard; DNA; 18 BP.
XX
AC AAQ31111;
XX
DT 24-MAR-1993 (first entry)
XX
DE PCR primer 80 for genotyping HCV-1.
XX
KW Hepatitis C virus; non-A, non-B hepatitis; 5'-untranslated region;
KW polymerase chain reaction; genotyping analysis; ss.
XX
OS Synthetic.
XX
BN WO9219743-A.
XX
PD 12-NOV-1992.
XX
PF 08-MAY-1992; 92WO-US04036.
XX
PR 08-MAY-1991; 91US-0697326.
XX
PA (CHIR) CHIRON CORP.
XX
PI Beall E, Cha T, Irvine B, Kolberg J, Urdea MS;
XX
DR WPI; 1992-398869/48.
XX
PT Compsn. comprising a non-hepatitis C virus-1 nucleotide sequence
PT - related to HCV-1, useful for treating and detecting HCV-1
PT infections and as a vaccine
XX
PS Claim 63; Page 36; 186pp; English.
XX
CC Primer 80 was used in PCR with primer 79 (AAQ31110) for HCV-1
CC genotyping analysis. After amplification, the reaction products were
CC Southern blotted and allowed to hybridise to labelled genotype-specific
CC probes (see AAQ31104, AAQ31105, AAQ31108 and AAQ31109).
XX
SQ Sequence 18 BP; 3 A; 6 C; 7 G; 2 T; 0 other;

Query Match 97.5%; Score 15.6; DB 13; Length 18;
Best Local Similarity 93.8%; Pred. No. 64;
Matches 15; Conservative 1; Mismatches 0; Indels 0; Gaps 0;

```
Qy       1 TTGGGCGYGCCCCCGC 16
           ||||||| :||||||||
Db      18 TTGGGCGTGCCCCCGC 3
```

SEQ ID NO: 27

RESULT 13
AAQ37611
ID AAQ37611 standard; DNA; 26 BP.
XX
AC AAQ37611;
XX
DT 23-JUN-1993 (first entry)
XX
DE HCV C9 isolate probe, position 555-575.
XX
KW Primer; probe; hepatitis C; virus; HCV; conserved region; RNA; R116;
KW open reading frame; polyprotein; prototype; untranslated region; UTR;
KW 5'UTR; conserved; replication; regulation; C9; R45; R110; R43; ss.
XX
OS Synthetic.
XX
PN EP529493-A.
XX
PD 03-MAR-1993.
XX
PF 19-AUG-1992; 92EP-0114115.
XX
PR 27-AUG-1991; 91US-0751305.
PR 21-JUL-1992; 92US-0918844.
XX
PA (HOFF) HOFFMANN LA ROCHE & CO AG F.
XX
PI Resnick RM, Young KKY;
XX
DR WPI; 1993-068572/09.
XX
PT Compsn. comprising oligo:nucleotide probe-primer - used for
PT detecting hepatitis C virus strains Japan, US and C9
XX
PS Claim 16; Page 4; 43pp; English.
XX
CC This sequence is a probe which was used in the isolation of the C9
CC isolate of hepatitis C virus (HCV). HCV is a small RNA virus
CC containing a small, positive sense, molecule of RNA about 10,000
CC nucleotides in length. the genome contains a single, long, open
CC reading frame believed to betranslated in to a single, large poly-
CC protein and subsequently processed. The open reading frame begins at
CC nucleotide 343 (using the numbering system from the proto- type virus)
CC following an untranslated region (UTR). The 5'UTR sequence is
CC relatively conserved and may be important in viral replication and
CC regulation. See also AAQ37569-610.
XX
SQ Sequence 26 BP; 5 A; 5 C; 10 G; 6 T; 0 other;

Query Match 100.0%; Score 16; DB 14; Length 26;
Best Local Similarity 100.0%; Pred. No. 15;
Matches 16; Conservative 0; Mismatches 0; Indels 0; Gaps 0;

Qy 1 TCTGCGGAACCGGTGA 16
||||||||||||||||
Db 9 tctgcggaaccggtga 24

Attachment A

Ex(2) Election/ oxidt #1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of

Maertens et al

Serial No. **09/899,082**

Filed: **July 6, 2001**

Atty. Ref.: **2752-50**

Group: **1634**

Examiner: **WHISENANT**

For: **PROCESS FOR TYPING OF HCV ISOLATES**

* * * * * * * * * * *

May 28, 2002

Assistant Commissioner for Patents
Washington, DC 20231

Sir:

AMENDMENT

Responsive to the Office Action dated February 27, 2002, entry and consideration of the following amendments and remarks are requested, the period for response having been extended up to and including Tuesday, May 28, 2002, by submission of the requisite petition and fee, attached.

IN THE CLAIMS:

Amend the claims as follows:

B1

24. (Amended) A polynucleic acid selected from the group consisting of

CCC TGT GAG GAA CTW CTG TCT TCA CGC (SEQ ID NO 1),

GGT GCA CGG TCT ACG AGA CCT (SEQ ID NO 2),

TCT AGC CAT GGC GTT AGT RYG AGT GT (SEQ ID NO 3),

TTG GGC GYG CCC CCG C (SEQ ID NO 20), and

TCT GCG GAA CCG GTG A (SEQ ID NO 27),

or the complement thereof, wherein W represents A or T, R represents G or A, and Y represents T or C.

REMARKS

Reconsideration is requested.

Claims 24-45 are pending.

Responsive to the Official Action dated February 27, 2002, the applicants elect, with traverse, SEQ ID NO:1 for further prosecution in the above.

The restriction requirement should be withdrawn for any one or a combination of the following. An Action on the merits of all the claimed subject matter is requested.

The restriction requirement should be withdrawn as the Examiner has not sufficiently supported the Examiner's assertion that the claims present a burdensome search and/or are directed to separately patentable inventions. That is, the Examiner has not indicated by appropriate reliance on scientific or technical evidence that the separately claimed nucleic acid sequences are distinct, such as by showing the subject matter has attained recognition in the art as a separate subject for inventive effort and that a separate field of search is required, such as may be the basis for a restriction requirement pursuant to MPEP §808.02. In fact the Examiner has admitted that the claimed subject matter has been classified by the Patent Office in the only two separate Classes and two Subclasses in each Class - which is submitted to be persuasive evidence that examination of all the claimed subject matter would not be an undue

TCT AGC CAT GGC GTT AGT RYG AGT GT (SEQ ID NO 3),

CAC TCG CAA GCA CCC TAT CAG GCA GT (SEQ ID NO 4),

TTG GGC GYG CCC CCG C (SEQ ID NO 20), and

TCT GCG GAA CCG GTG A (SEQ ID NO 27),

or the complement thereof, wherein W represents A or T, R represents G or A, and ~~Y represents T or C.~~

25. (new) A composition comprising at least one oligonucleotide primer preferably having at least 15 contiguous nucleotides, with said contiguous nucleotides being chosen from any of the following sequences: SEQ ID NOs 1 to 4.

26. (new) A polynucleic acid consisting of 10 to 50 nucleotides which specifically hybridizes with the sequence of SEQ ID NO 20 or the complement thereof under conditions allowing discrimination of up to 1 nucleotide mismatch.

27. (new) A polynucleic acid consisting of 10 to 25 nucleotides which specifically hybridizes with the sequence of SEQ ID NO 27, or the complement thereof.

28. (new) A method for detecting the presence of an infection with an HCV virus in a biological sample by means of a hybridization reaction wherein a polynucleotide of claims 26 or 27 is used as a probe.

29. (new) A method according to claim 28 wherein a polynucleotide with the sequence of SEQ ID NO 20 or 27 or the complement thereof is used as an HCV specific probe.

30. (new) A method according to claim 28 wherein said hybridization reaction is carried out with said probes which are coupled to a solid support, preferably a membrane, and wherein said probes are optionally capture probes.

31. (new) A method according to claim 29 wherein said hybridization reaction is carried out with said probes which are coupled to a solid support, preferably a membrane, and wherein said probes are optionally capture probes.

32. (new) A method for detecting the presence of an infection with an HCV virus in a biological sample by means of an amplification reaction using (a set of) primers that specifically hybridize to SEQ ID NO 1 or SEQ ID NO 2, or the complement thereof; and to SEQ ID NO 3 or SEQ ID NO 4, or the complement thereof.

33. (new) The method according to claim 32 wherein said amplification method is PCR, LCR, NASBA, TAS or amplification by means of Qb replicase.

34. (new) A diagnostic kit for the detection of HCV in a biological sample comprising at least one of the polynucleic acids of any of claims 24 to 26.

35. (new) Probe containing up to 50 nucleotides having at least one of the following universal HCV sequences from the 5'UR region of HCV: SEQ ID NO 20 and 27,

wherein Y represents T or C, or the corresponding sequence wherein T has been replaced by u, or the sequences which are complementary to the above-defined sequences and with said probe being used for the identification of a previously amplified HCV 5'untranslated region fragment.

36. (new) Process for general amplification of the 5' UR region of HCV isolates involving at least one of the following degenerate primers

-a degenerate primer with SEQ ID NO 1, preferably in combination with a primer selected from the region extending from nucleotide -52 to nucleotide -1, such as SEQ ID NO 2, wherein W represents A or T, or the complement of SEQ ID NO 1 or 2,

-a degenerate primer with SEQ ID NO 3, preferably n combination with a primer selected from the region extending from nucleotide -68 to nucleotide -1, such as SEQ ID NO 4, wherein R represents A or G and Y represents T or C, or the complement of SEQ ID NO 3 or 4.--

REMARKS

Claims 1-23 have been canceled, without prejudice.

Claims 24-36 have been added and are pending

The specification has been amended to include the attached Sequence Listing which is a copy of the Sequence Listing filed in paper and computer-readable form in the parent Application No. 09/378,900 with a Statement dated August 23, 1999. No new matter has been added. The Office is requested to use the computer-readable copy of the Sequence Listing from the parent Application No. 09/378,900, for the above-identified application. A separate Request is attached in this regard.

A substitute Power of Attorney and Change of Address Notice is attached and the Office is requested to direct all further communication relating to the above to the undersigned.